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WILLINGNESS TO PAY PER QUALITY ADJUSTED LIFE-YEAR: IS ONE THRESHOLD APPLICABLE FOR ALL DECISION-MAKING?

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OBJECTIVES: To estimate the Willingness to pay (WTP) per quality-adjusted life-year (QALY) ratio with the stated preference data and compare the results obtained between chronic prostatits (CP) patients and general population. **METHODS:** CP patients were recruited from two tertiary referral hospitals and the general populations were randomly approached in China at the beginning of 2009. WTP per QALY was calculated with a formula combining the subjects' own health-related utility and the WTP value. Two widely used preference-based health-related quality of life instruments, EQ-5D and SF-6D, were used to elicit utility for participants' own health. The monthly WTP values for moving from participants' current health to a perfect health described by "11111" status of EQ-5D were elicited using closed-ended iterative bidding contingent valuation method. **RESULTS:** A total of 268 CP patients and 364 participants from general population completed the questionnaire. We obtained four WTP/QALY ratios ranging from $4700 to $7400, which were lower than the proposed thresholds and published researches eliciting the preference for avoiding the risk of death. In addition, the WTP/QALY ratios from the general population were significantly lower than those from the CP patients and different determinants were associated with the within group variation identified by multiple linear regression. **CONCLUSIONS:** Preference elicitation methods are acceptable and feasible in the socio-cultural context of an Asian environment and the calculation of WTP/QALY produced meaningful answers. The lower WTP/QALY elicited than published values and higher value from CP patients compared with the general population highlight the necessity of considering disease specific QALY in estimating WTP/QALY. Our results inferred that one threshold might not be enough to serve all decision-making under different situations. Further studies using the same methods to confirm whether the WTP/QALY value would be dissimilar among diseases with different impact on QoL would be needed.

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PROBABILISTIC SENSITIVITY ANALYSIS—A NECESSARY EXTRA?

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OBJECTIVES: Probabilistic sensitivity analysis (PSA) is a useful tool to assess parameter uncertainty, but being among the more technically advanced methods in cost effectiveness modeling, it is sometimes underutilized. However, following the incorporation of PSA by NICE, the English HTA agency, into their guidelines in 2005, there was a call for the routine use of PSA in economic modeling. This study investigates whether these two developments have had an effect on cost-effectiveness modeling practice, and also reviews current requirements for PSA in reimbursement guidelines globally. **METHODS:** The following three journals in which cost effectiveness analyses are most often published were included in the study: *Medical Decision Making*, *Pharmacoeconomics* and *Value in Health*. All papers published in these three journals in 2004 and 2009 respectively were assessed. In addition, pharmacoeconomic guidelines from 31 countries were compared for the requirement of PSA in reimbursement submissions. **RESULTS:** In the three journals from 2004 to 2009, the overall number of articles presenting cost-effectiveness modeling increased from 41 (2004) to 55 (2009). In 2009, 69% of these articles presented PSA, compared to only 32% in 2004. Of a total of 31 national pharmacoeconomic guidelines, 12 mention PSA. However, only six of these require this form of analysis to be included in reimbursement submissions. Many countries with well established requirements for economic analysis in reimbursement submissions, such as Australia, do not require PSA. **CONCLUSIONS:** The usage of PSA to investigating parameter uncertainty is now common and increasing. The trend is also starting to show in the reimbursement agencies' guidelines.

PHP33

CHINESE PAYERS' VIEW OF PHARMACEUTICAL VALUE ATTRIBUTES: WHICH EVIDENCE DRIVES ACCESS?

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OBJECTIVES: The evidence needs of payers in mainland China at the national, regional and local hospital level are poorly understood. As such, analysis is required to capture payer preferences regarding evidence submissions from pharmaceutical companies and identify emerging trends in value evidence needs. **METHODS:** A qualitative telephone survey of 30 key payers in Tier 3A hospitals, provincial funding bodies and national decision-making groups was conducted. Respondents were asked to score the impact of the following value attributes in their routine assessment of health-care products for formulary listing and/or reimbursement: 1) Innovation; 2) Health-related quality of life; 3) Unmet need; 4) Cost effectiveness; 5) Price; 6) Budget impact; 7) Safety; 8) Efficacy in head-to-head trials; and 9) Efficacy in selected populations. Scores derived were weighted according to a market impact assessment in order to derive maximal scores for each evidence type. **RESULTS:** Hospital payers reported that budget impact was the least significant evidence type (Score 5.6), due to the "self-pay" model of patient access in China. Among hospital and provincial payers, price was the second least significant attribute (Score 6.3), due to the separation of pricing functions and assessment of clinical evidence in China. However, efficacy in head-to-head studies (Score 7.5) and safety (Score 8.3) were the most desired attributes. **CONCLUSIONS:** Awareness of cost-effectiveness is at an early stage in major hospitals in China; the key attributes continue to be safety and efficacy. However, there is a trend toward requirement of health-related quality of life data at the national payer level, particularly regarding oncology medicines. Further research is needed in this area, in order to gain a more detailed understanding from the pharmaceutical company perspective.

HEALTH CARE USE & POLICY STUDIES – Health Care Research & Education

PHP34

THE EVALUATION OF HEALTH-CARE SYSTEMS OF CHINA, HONG KONG, VIETNAM, THAILAND, MALAYSIA, SINGAPORE AND AUSTRALIA

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OBJECTIVES: To examine the health-care systems of China, Hong Kong, Vietnam, Thailand, Malaysia, Singapore and Australia using a pre-determined set of indicators. These were used to assess each system in terms of accessibility, effectiveness, efficiency, quality and responsiveness. **METHODS:** This study was a qualitative study. A set of indicators and sub-indicators was developed based on indicators used by the World Health Organisation, United Nations, the Organisation for Economic Co-operation Development (Health Care Quality Indicator Project), and from health frameworks of Australia, New Zealand, Canada, USA and UK. The indicators were used to assess health-care systems from an operational perspective. A literature search and interviews with relevant academics and government officials were conducted to address each indicator. This provided a more comprehensive view of the functioning of each health-care system and how the system itself is regulated and provides health-care services to its people. **RESULTS:** Each of the surveyed countries have certain measures or programs in place to address health-care accessibility. The majority of the countries have clear guidelines to improve effectiveness and efficiency. However, most developing Asian countries lack clear programs to assess the quality and responsiveness of their health-care systems. **CONCLUSIONS:** Different countries have different health considerations and priorities in terms of politics, finance and resources where health-care systems are concerned. Each has its respective strengths and weaknesses. What is appropriate for one country may not be suitable for another. This evaluation provided clarity and insight into the operation of each system and highlighted areas that require further attention. Interviews with local academics, government officials and other health-care stakeholders in each country yielded a more comprehensive and in-depth understanding on the functioning of each health-care system.

PHP35

HEALTH TECHNOLOGY ASSESSMENTS: INDICATORS OF DEVELOPMENT IN ASIA

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OBJECTIVES: To understand the historical climate through which ten Asian markets arrived at the establishment of an HTA authoritative body, and the extent to which pharmacoeconomic evaluations have evolved in each of these markets. **METHODS:** Secondary and primary research was conducted in South Korea, Thailand, Philippines, Taiwan, Singapore, Malaysia, Indonesia, India, China and Japan to examine political and economic changes over the last 30 years. The results were compiled and analyzed along with other metrics, such as pricing legislation, health-care coverage, and HTA development to determine a correlative pattern for Asian pharmacoeconomic development. **RESULTS:** While three of the studied markets are exceptions to the trend, we believe the other seven will follow the a discernible course of events. A change in political climate, desire for universal health care, financial crisis and strong development of a national formulary are all policy objectives and events along the path toward HTA development. HTA establishment in those seven countries is at various phases of development, but for most of the markets creation of an HTA unit and utilization of it is the next step in their pharmaceutical market evolution. **CONCLUSIONS:** Developing pharmaceutical markets have become reliant on pharmacoeconomic data to determine the true value of innovative pharmaceutical products. The establishment of an HTA body in these Asian countries will continue to develop and will become an important aspect of their pharmaceutical market expansion, therefore the subject matter warrants further research and attention.

PHP36

ANALYSIS OF THE TECHNICAL EFFICIENCY IN THREE TEACHING HOSPITALS IN MALAYSIA

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OBJECTIVES: The measurement of efficiency is usually the first step in auditing performance of hospitals. Measuring hospital efficiency provides useful information for hospital managers. It constitutes the rational framework for the distribution of human and other resources between and within hospitals. This study focuses on measuring and evaluating technical efficiency in teaching hospitals at department level

in Malaysia. **METHODS:** A non-parametric method called Data Envelopment Analysis (DEA) with two assumptions : Variable Return to Scale (VRS) and Constant Return to Scale (CRS), was used to calculate and compare the efficiency scores for selected hospitals' clinical departments between the year 1998 and 2006. DEA input oriented analysis indicates how the inefficient units could adjust their inputs to reach the efficiency frontier. **RESULTS:** Based on CRS model the mean efficiency scores in Hospital A departments were 76%. One department was around 50% and six departments were between 50% and 90% and three departments were more than 90%. The mean efficiency scores in Hospital B was 92%. In this hospital, two departments were between 75% and 90% and two departments had efficiency score equal 100% during study period. In Hospital C all departments were more than 75% and one department had efficiency score equals 100%. The results based on VRS model showed similar trends. **CONCLUSIONS:** The mean of efficiency score according different assumptions of Hospital B was higher than two other hospitals. The results showed that few departments are efficient and rests are considered inefficient and need to find optimum mixture of inputs combination. It is suggested that Hospital A and Hospital C should consider to improve their management of the resource inputs in inefficient department in order to enhance their efficiencies.

HEALTH CARE USE & POLICY STUDIES – Health Technology Assessment Programs

PHP37

PRIORITIZATION OF HEALTH POLICY AND SYSTEM RESEARCH TOPICS IN THAILAND: MAKING IT SYSTEMATIC, TRANSPARENT AND PARTICIPATORY

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OBJECTIVES: A growing concern is that health policy and system researches (HPSR) should address the needs of potential users, and subsequently have substantial impacts on policy decisions and professional practices. The purpose of this study is to describe the experience on the annual HPSR topic prioritization conducted by Thailand's Health Systems Research Institute and its alliances. **METHODS:** Narrative descriptive and quantitative approaches were employed to illustrate the processes of and results from the HPSR topic prioritization in 2010. **RESULTS:** The prioritization process was carried out on the basis of systematicness and transparency, with participation by key stakeholders including policymakers, academics, health professionals, civil society, and industries. There was a call for research topic proposals from stakeholders in November and December 2009. A total of 120 topics suggested by 66 organizations were then prioritized by 90 representatives of stakeholder organizations. Multiple criteria introduced in this step involved policy relevance; disease burden; economic impact; social and ethical aspects; variation in practices; possibility of changing practices; and public concerns. It was found that topics related to diseases with high burden, relating to service delivery especially on health promotion and disease prevention, and those submitted by central government agencies were more likely to get high priority than others. In addition, results from self-administrative survey demonstrated that over 92% of stakeholders strongly supported and expressed their interest to participate in the next annual topic prioritization process. **CONCLUSIONS:** This case study demonstrated that it is feasible to develop clear criteria and transparent process for prioritization of HPSR topics. Lessons learned from this case study can be useful for improving mechanism for selecting HPSR topics in other settings.

PHP38

COMPLEXITY INCREASES UNCERTAINTY: THE IMPACT OF PBAC GUIDELINES (VERSION 4) ON PBAC DECISION-MAKING

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OBJECTIVES: In Australia, the Pharmaceutical Benefits Advisory Committee (PBAC) makes recommendations to the Minister for Health on the reimbursement of pharmaceuticals. The sponsor's submission is accepted by the PBAC if the drug is determined to be clinically effective and also cost-effective. New PBAC Guidelines on how to prepare a submission (version 4) were introduced in 2008. These new Guidelines sought to reduce the uncertainty for the PBAC in accepting the many inferences made in major submissions. We assessed whether the New Guidelines have indeed reduced the PBAC's uncertainty in their decision-making. **METHODS:** Since June 2003 all PBAC recommendations have been made public on the Department of Health & Ageing website. Public Summary Documents (PSD) are available for PBAC considerations relating to the PBS listing of medicines since July 2005 meeting. We reviewed all the PSDs reported during the period of July 2005 to July 2009. For each PSD, we estimated the average number of times that the words "uncertain/uncertainties/uncertainty" appear per PSD page. We compared the results for the period before and after the introduction of version 4 of the PBAC Guidelines. **RESULTS:** The average number of times that the words "uncertain/uncertainties/uncertainty" appeared per PSD page was significantly higher for the period after the introduction of version 4 of the PBAC Guidelines compared to the period before (0.51 vs. 0.66, $P < 0.00001$). **CONCLUSIONS:** The introduction of version 4 of the PBAC Guidelines in 2008 has led to an increase in the complexity and, thus, uncertainty faced by PBAC during their deliberations around reimbursement of pharmaceuticals in Australia. There was a significant 30% increase in the number of times that the word "uncertain/uncertainties/uncertainty" was found per PSD page compared with the period prior to the introduction of the version 4 of the Guidelines (2003–2008).

HEALTH CARE USE & POLICY STUDIES – Prescribing Behavior & Treatment Guidelines

PHP39

THE EFFECTS OF DIRECT BILLING SYSTEM IN PATIENTS WITH CIVIL-SERVANT MEDICAL BENEFIT SCHEMES ON PRESCRIBING PATTERNS

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OBJECTIVES: In 2006, the reimbursement system for civil-servant medical benefit schemes beneficiaries in Thailand was changed to direct billing system. It was unknown how this new system affects drug expenditures and the number of drug supply given to beneficiaries. This study aims to assess the effects of direct billing system on prescribing patterns. **METHODS:** This study was undertaken with retrospective cohort approach. We used the data recorded in databases of a university hospital in northern part of Thailand. We undertook the data on all patients with civil-servant medical benefit schemes who came to out-patients department between October 1, 2005 and March 31, 2007. Mean cost of medication, number of days' supplies and medication possession ratio (MPR) of five highest costs of oral medication were calculated in 1 year before and after the system was changed. **RESULTS:** Out of 43,897 visits made at the hospital, 15,632 (36%) were under civil-servant medical benefit schemes. Eighty-eight percent (13,785/15,632) received medications during visit. The total costs of medication increased from 2 million to 4 million baths in 1 year. Glucosamine, atorvastatin, rosiglitazone, clopidogrel and diacerin were highest used in terms of drug cost. Averages of day's supplies based on these medications increased from 1.29 to 1.48 months per a prescription. Proportion of patients receiving medications more than 3 months, was slightly increased from 1.82% to 2.43%. Three out of five medications had higher MPR after system was changed (Relative risk ranged on 1.19–2.32). Two of these were statistical significant. **CONCLUSIONS:** The direct billing system affects prescribing patterns as indicated by trend of increased number of day's supplies and higher medication possession ratio. Further evidence remains needed. Policymakers need to consider all relevant and important consequences associated with the new system prior to making policy decision-making.

INDIVIDUAL'S HEALTH – Clinical Outcomes Studies

PIH1

CRITICAL APPRAISAL OF SYSTEMATIC REVIEWS ASSESSING SAFETY OUTCOMES OF SSRIS IN THE PERINATAL PERIOD

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OBJECTIVES: A systematic appraisal was conducted of published systematic reviews that assessed the harms associated with selective serotonergic reuptake inhibitors (SSRIs) in the perinatal period, both for the mother and infant. **METHODS:** A systematic method of literature searching and selection was employed for this review. Searches were conducted in EMBASE, Medline and the Cochrane Database of Systematic Reviews. Studies were eligible if they evaluated pregnancy or infant-related safety outcomes for SSRI use in pregnant or lactating women. **RESULTS:** The literature search identified seventeen systematic reviews and three subsequently published prospective cohort studies. None of the systematic reviews assessing serotonergic antidepressants as a group found an association with congenital malformations. An association between paroxetine exposure and infant cardiovascular malformations has been reported in the literature; however, more recent evidence from a large systematic review shows no relationship between paroxetine exposure and congenital cardiac malformations. Neonatal symptoms (such as withdrawal symptoms, lower Apgar score, and diminished response to pain stimulus) have been reported in 20–30% of infants with third trimester SSRI exposure. All of the reviews reported the symptoms as mild and self-limiting. Several SRs found a significant association between SSRI use in pregnancy and premature delivery, low birthweight, and admission to special care nurseries. There is conflicting evidence regarding the long-term neurodevelopmental risks of serotonergic antidepressants. Although the levels of SSRIs in breast milk are relatively low, the evidence for the safety of antidepressant exposure via breastfeeding is limited. **CONCLUSIONS:** SSRI exposure during pregnancy is associated with mostly minor and temporary adverse outcomes for the newborn. The risk of these outcomes needs to be balanced with the risk of adverse outcomes resulting from SSRI withdrawal for the mother.

PIH2

IMPACT OF HPV VACCINATION ON CERVICAL CANCER IN ASIA: RESULTS OF A STATIC MODEL

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OBJECTIVES: Estimate the potential clinical effect of HPV vaccination with a bivalent HPV-16/18 vaccine in Asian countries including the effect of cross-protection against non-vaccine oncogenic HPV types. **METHODS:** A static population model estimates